



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/080,709	02/25/2002	Katsunari Ohsono	219973US3	8295

22850 7590 08/25/2003

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

PALABRICA, RICARDO J

ART UNIT	PAPER NUMBER
----------	--------------

3641

DATE MAILED: 08/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/080,709

Applicant(s)

OHSONO ET AL.

Examiner

Rick Palabrica

Art Unit

3641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-15 is/are pending in the application.
- 4a) Of the above claim(s) 6-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-5 and 13-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Applicant's amendment in Paper No. 20, which amends claims 1, 3 and 15, cancels claim 2, and adds new claims 13 and 14, is acknowledged. This amendment is in response to the 3/7/03 Office Action.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The new subject matter pertains to a plurality of cutting sections for "mutually plurality engaging" the plurality of rectangular plate members. Note that although this new subject matter is not shown underlined in applicant's amendment, it is an actual change from the previous claim 1 that was recited in Paper No. 12 and evaluated in the 3/7/03 Office Action.

Art Unit: 3641

3. Claims 1, 3-5, and 13-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is vague and indefinite because it is unclear what is meant by the term "mutually plurality engaging", and therefore the metes and bounds of the claim cannot be defined.

Claims 1 and 15 are vague and indefinite because each recites the relative term, "substantially in close contact" to describe the relationship between the barrel main body and the basket. The criterion for determining substantial close contact is not defined. For example, how far apart must they two structures be in order to be considered not in substantial close contact? Thus, the term can be given no definite meaning and accordingly the metes and bounds of the claims are undefined.

Claim 3 recites the terms "stepped comers" and "arose section" that are undefined.

Claim 15 recites the terms "stepped comers" and "aross section" that are undefined.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 3641

4. Claims 1 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Machado et al. (U.S. 4,711,758), who discloses a spent fuel storage cask having a basket with grid assemblies.

They disclose in Fig. 6 a main barrel body of unitary construction of carbon steel (58) with an inner lining of stainless steel (60), which acts as gamma ray shield. There is a neutron shield made of resin material (72) provided in an outer periphery of the barrel main body. They also disclose in Figs. 3, 5 and 7 a basket including a plurality of rectangular plate members and alternately piled up vertically, forming a plurality of cells configured to hold fuel assemblies, the basket having a cross section of stepped corners. Note from Fig. 15 that the barrel main body and the basket are in close contact with one another.

As shown in Fig. 5, the plate members have a plurality of cutting sections for mutually engaging the plurality of rectangular plate members. Applicant's claim language "mutually plurality engaging" is interpreted to mean "mutually engaging".

Claim 1 includes the statement of intended use, "capable of absorbing neutrons", which does not serve to patently distinguish the claimed structure over that of the reference, as long as the structure of the cited references is capable of performing the intended use. See MPEP 2111-2115.

See also MPEP 2114 that states:

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647.

Art Unit: 3641

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531.

[A]pparatus claims cover what a device is, not what a device does.”
Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

As set forth in MPEP 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

The basket in the cited reference is capable of being used in the same manner and for the intended or desired use as the claimed invention. The basket of Machado et al. is made of aluminum, a material that is capable of absorbing neutrons.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Machado et al., who also discloses the applicant claims except for the outer shape of the dummy pipes.

Applicant's claim language, "dummy pipes", reads on Machado et al.'s pipes (88) that are connected to filler blocks 134, 136 and 138, as shown in Fig. 15. These pipes (88) are provided along and in contact with the stepped corners of the basket, said

Art Unit: 3641

pipes having a circular cross section. These pipes inherently contain some trapped air that is a heat conducting medium.

As to the limitation in the claims regarding the dummy pipes having an outer shape of a polygon, this is a matter of design choice.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Machado et al. in view of Wells et al. (U.S. 4,827,139). Machado et al. disclose the applicant's claim except for the use of an aluminum alloy containing boron for the dummy pipes. Machado et al. disclose that their pipes (88) and filler blocks are made of aluminum (see column 6, lines 61+).

Wells et al. disclose a spent nuclear fuel shipping basket and cask (see Figs. 1-5). Fig. 1 shows a cask (11) containing a spent nuclear basket (13), consisting of a number of cells (41) into which nuclear fuel assemblies (not shown) are inserted for transport. The basket has a cross section having a plurality of stepped corners. Fig. 3 shows filler blocks 42 forming a cavity having a cross section which complements the cross section of the basket 41. Wells et al. cask also disclose filler blocks (43) of heat absorbing, neutron absorbing material (such as an alloy of aluminum and boron) inserted into the empty spaces between the basket and the wall of the cask (see Abstract, Fig. 3 and column 4, lines 33+). They further disclose that these filler blocks can have different shapes and dimensions, such that when the blocks are assembled in the cask, the basket is held rigidly within the cask (e.g. see claim 1).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus, as disclosed by Machado et al. , by the teaching of Wells et al., obtain a cask with dummy pipes made of an aluminum alloy containing boron, to gain the advantages thereof (e.g., more effective neutron absorption), as this more than the use of a well known expedient within the nuclear art, and the substitution of one structural material by another well known structural material.

9. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Machado et al. in view of the combination of Horning (U.S. 3,036,964) and Mogard (U.S. 4,004,972). Machado et al. disclose the applicant's claim except for the use of a helium gas inside the dummy pipes.

Horning teaches the use in a nuclear reactor core of filler members (26) in the form of a hollow aluminum container (e.g. see Figs. 1-3 and column 3, lines 73-75). Horning teaches further that these filler members can be in the form solid aluminum bars. Note that both Horning and Machado et al. use aluminum for filler material.

Mogard teaches a nuclear fuel element that adds helium gas to the void volume to improve heat transfer in the annular gap (see column 4, lines 60+). Note that both Mogard and Machado et al. are concerned with improving heat transfer in their devices.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus, as disclosed by Machado et

Art Unit: 3641

al., by the teachings of Horning and Mogard in order obtain a cask further comprising a dummy pipes with helium gas, to gain the advantages thereof (e.g., better heat transfer), as this is no more than the use of conventional designs/techniques within the nuclear art, and the substitution of one filler block configuration by another well-known configuration.

In the remarks section of Paper No. 20, applicant traversed the use of Horning and Mogard on the grounds that they pertain to nuclear fuel elements instead of the claimed cask. Applicant's arguments have been fully considered but found not persuasive because the teaching in Horning and Mogard on the use of filler material to improve heat transfer can also be applied to a spent fully cask.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

11. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

Art Unit: 3641

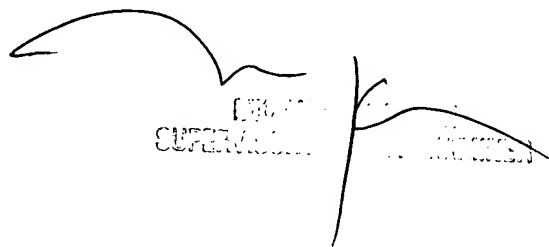
extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 703-306-5756. The examiner can normally be reached on 7:00-4:30, Mon-Fri; 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 703-306-4198. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

RJP
August 20, 2003

A handwritten signature in black ink is written over a rectangular stamp. The stamp contains the word "SUPERVISOR" in a bold, sans-serif font. The signature is a stylized, cursive-like script that extends across the stamp and slightly to the right.